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Current state of digital dentistry: Digital dentures and their properties

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Digital technologies offer the opportunity to integrate facial scans into the design of digital dentures and provide a 3D preview and simulation of the tooth arrangement for treatment planning. The conventional fabrication methods are, error-prone, time-consuming, complex, and expensive procedures. Removable partial dentures (RPD) and Complete dentures(CD) fabricated by computer-aided design and computer-aided manufacturing (CAD-CAM) techniques have become popular. Therefore, we reviewed the treatment outcomes of concepts used for implant-supported overdentures, RPDs and CDs.

Digital dentures can be fabricated digital or combined analog-digital while using intraoral scanners or extraoral scanners. Milling and rapid prototyping (3D printing), have been widely used in the fabrication of dentures. They have been reported to have clinically acceptable results. Digital dentures were evaluated by their accuracy, patients satisfaction, outcomes and their procedures. CAD/CAM dentures have several advantages such as reducing clinical chair time and the number of visits, digital archiving, significantly higher retention, and more favorable clinical and patient-centered, less denture tooth movement, increased toughness, ideal flexural strength, and higher elastic modulus. CAD/CAM dentures showed at least comparable accuracy. However, disadvantages such as high cost, software errors, and lack of jaw relations in functional state, are still the problem.

CAD/CAM dentures had better clinical outcomes than conventional dentures. Although, there are some limitations in the manufacturing procedures. Results of studies suggest there is a great potential for further investigations.

Biography

Rata Rokhshad, a 6th year dental student at Tehran medical sciences, Islamic Azad University, Tehran, Iran. I have been working in a digital dental office and a digital dental lab. I have been researching in digital dentistry and CAD-CAM materials.I have published papers in dental journals. I have presented several poster presentation (AEEDC, Iranian prosthodentics, Digital Dentistry congress...) and oral lectures (EXCIDA) in different dental congress.

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